

## REMARKS

At the time the office action was mailed, claims 1-19 were pending. Claims 12-19 were allowed, claims 5 and 10 were objected to and claims 1-4, 6-9 and 11 were rejected. Applicants thank the Examiner for allowance of claims 12-19. Claims 30-34 have been added to set forth the recited subject matter more clearly under the doctrine of claim differentiation. Applicants respectfully request reconsideration of claims 1-11 and consideration of claims 30-34 in view of these amendments and the remarks set forth below.

### Rejections Under 35 U.S.C. § 102

The Examiner rejected claim 11 under 35 U.S.C. § 102(b) as being anticipated by Olarig et al (U.S. Pat. No. 6,098,132). Specifically, the Examiner stated:

Olarig teaches the memory system comprising a plurality of memory cartridges, comprising the act of independently transitioning each of the plurality of memory cartridges to a redundant-ready state in Fig. 2, col. 1 lines 39-46 and col. 9 lines 55-63. When the memory module is powered and the connector is live, the memory module is used in a redundant, fault tolerant scheme. It is clear, therefore, that the state of being connected, i.e. the first state, is a redundant-ready state as claimed.

Anticipation under Section 102 can be found only if a single reference shows exactly what is claimed. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 227 U.S.P.Q. 773 (Fed. Cir. 1985). For a prior art reference to anticipate under Section 102, every element of the claimed invention must be identically shown in a single reference. *In re Bond*, 910 F.2d 831, 15 U.S.P.Q.2d 1566 (Fed. Cir. 1990). To maintain a proper rejection under Section 102, a single reference must teach each and every element or step of the rejected claim. *Atlas Powder v. E.I. du Pont*, 750 F.2d 1569 (Fed. Cir. 1984). Thus, if the claims recite even one element not found in the cited reference, the reference does not anticipate the claimed invention.

Claim 11 recites a method comprising “independently transitioning each of the plurality of memory cartridges to a redundant-ready state.” As a preliminary matter, the portion of the Olarig reference cited by the Examiner is directed to adding and removing a *memory module* 14 from a slot connector 16. A memory module, such as a dual inline memory module (DIMM) or a single inline memory module (SIMM), has a particular meaning and connotes a particular significance to those skilled in the art. In contrast, a *memory cartridge*, as recited in the present claims, has a different meaning and significance to those skilled in the art. For instance, in accordance with embodiments of the present invention, each memory cartridge 25A-25E comprises a respective memory segment 24A-24E and a respective memory controller 20A-20E. Each memory segment 24A-24E comprises a plurality of memory modules, such as a plurality of DIMMs. *See e.g.*, Fig. 1; page 9, lines 6-22. For this reason alone, it is clear that the Olarig reference *does not* disclose “memory cartridges” within even the broadest reasonable meaning of the term, and therefore cannot possibly disclose an act associated with memory cartridges, such as “transitioning...memory cartridges,” as recited in claim 11. Accordingly, the Olarig reference cannot possibly anticipate the recited subject matter.

Further, as described above, claim 11 does not disclose transitioning a plurality of memory cartridges, much less *independently* transitioning each of the plurality of memory cartridges to a redundant-ready state as further recited in claim 11. At best, Olarig discloses implementing a single memory controller 12 to control the power up and power down sequence of a memory module when the memory module is connected or disconnected into a connector. Col. 9, lines 22-32. However, the Olarig reference does not fairly teach or disclose a method comprising the act of independently transitioning *a plurality of memory cartridges*, much less that the plurality of memory cartridges are transitioned independently and to a redundant-ready state.

For this additional reason, Applicants submit that the Olarig reference does not anticipate the subject matter presently recited in claim 11. Accordingly, Applicants respectfully request withdrawal of the Examiner's rejection under 35 U.S.C § 102 and allowance of claim 11.

### **Rejections Under 35 U.S.C. § 103**

The Examiner rejected claims 1-4, 6 and 8 under 35 U.S.C. § 103(a) as being unpatentable over Olarig et al. (U.S. Pat. No. 6,098,132) in view of Abe et al. (U.S. Pub. No. 2003/0093605). With regard to independent claim 1, the Examiner stated:

Olarig teaches a memory system comprising a plurality of memory cartridges in Fig. 2.

Olarig teaches a data controller configured to independently interpret the transition of the corresponding memory cartridge between a first state of operation and a second state of operation, wherein the first state of operation permits the memory cartridge to be used to store data in a redundant memory array and wherein the second state of operation prevents the memory cartridge from being used to store data in a redundant memory array in Fig. 2, Fig. 5. col. 1 lines 39-46 and col. 9 lines 55-63. When the memory module is powered and the connector is live, the memory module is used in a redundant, fault tolerant scheme. It is clear, therefore, that the state of being connected, i.e. the first state, is a redundant-ready state as claimed. The second state, when not connected, does not allow the memory to be used to store data in a redundant memory array.

Olarig does not explicitly teach each of the plurality of memory cartridges comprising at least one memory device and a memory controller. Olarig does, however, teach a plurality of memory cartridges.

Abe teaches each of the plurality of memory cartridges comprising at least one memory device and a memory controller in paragraph 0076-paragraph 0078. It would have been obvious to one of ordinary skill in the art at the time of invention to combine the memory cartridges of Abe with the hot plug memory system of Olarig.

Applicants respectfully traverse this rejection. The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985).

As recognized by the Examiner, the Olarig reference does not teach a plurality of memory cartridges, “each of the plurality of memory cartridges comprising at least one memory device and a memory controller,” as recited in independent claim 1. However, contrary to the Examiner’s assertion, because the Olarig reference fails to even disclose a plurality of memory cartridges each comprising a memory controller, the Olarig reference cannot possibly teach a plurality of control mechanisms, “each of the plurality of control mechanisms corresponding to a respective one of the memory controllers and configured to independently interpret a transition of the corresponding memory cartridge between a first state of operation and a second state of operation,” as further recited in claim 1. Clearly, because the Olarig reference does not even disclose a plurality of memory cartridges, it cannot possibly disclose a respective control mechanism coupled to each of the respective memory controllers in each of the memory cartridges.

Still further, the Olarig reference does not even disclose a plurality of control mechanisms corresponding to each of the memory controllers, much less that each of the plurality of control mechanism is configured to *independently interpret* the transition of the corresponding memory cartridge between a first state of operation and a second state of operation, as further recited in claim 1. Accordingly, the Olarig reference fails to teach at least three of the recited features: 1) memory cartridges, 2) control mechanisms and 3) the independent interpretation of state transition at the memory cartridge, as recited in claim 1.

While the Abe reference may disclose a plurality of memory cartridges comprising at least one memory device and a memory controller, the Abe reference does not disclose a plurality of control mechanisms corresponding to the respective one of the memory controllers, much less a plurality of control mechanisms, “configured to independently interpret the transition of the corresponding memory cartridge between a first state of operation and a second state of operation.” Accordingly, the Abe reference fails to cure all of the deficiencies in the primary reference. Accordingly, the cited references, taken alone or in combination, do not disclose all of the features recited in the present claims, much less provide a motivation to combine those references in the manner recited in the present claims and therefore, cannot possibly render the recited subject matter obvious. Accordingly, Applicants respectfully request withdrawal of the Examiner’s rejection and allowance of independent claim 1 as well as dependent claims 2-4, 6 and 8 which are dependent thereon.

The Examiner rejected claims 7 and 9 under U.S.C. § 103(a) as being unpatentable over Olarig et al. (U.S. Pat. No. 6,098,132) and Abe et al. (U.S. Pub. No. 2003/0093605) as applied to claim 1 and further in view of Krueger (U.S. Patent No.

5,331,646). Applicants respectfully submit that the Krueger reference fails to obviate the deficiencies of the Olarig and Abe references as discussed above with reference to independent claim 1. Accordingly, based on their dependency to claim 1, Applicants respectfully submit that dependent claims 7 and 9 are also allowable for the reasons set forth above. Accordingly, Applicants respectfully request withdrawal of the rejection and allowance of claims 7 and 9.

### **New Claims**

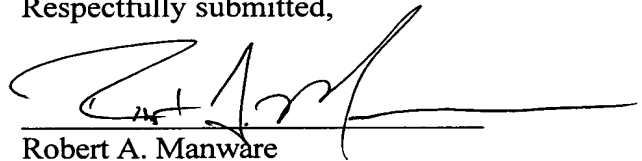
New claims 30-34, which are dependent on claim 11, have been added. Applicants respectfully submit that dependent claims 30-34 are allowable based on their dependence to the allowable base claim and for the reasons set forth above with respect to claim 11. Further, dependent claims 30-34 are allowable for the subject matter additionally recited in each respective claim. As recognized by the Examiner in his indication of allowable subject matter in claims 5 and 10, the Olarig reference does not recite the additional features now recited in claims 30-34. Accordingly, Applicants respectfully request consideration and allowance of new claims 30-34.

## **Conclusion**

In view of the remarks and amendments set forth above, Applicants accept allowance of claims 12-19, respectfully request allowance of claims 1-11, and respectfully request consideration of new claims 30-34. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Date: November 23, 2004

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Robert A. Manware', is written over a horizontal line.

Robert A. Manware  
Reg. No. 48,758  
(281) 970-4545

## **HEWLETT-PACKARD COMPANY**

Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, Colorado 80527-2400